

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 99-NM-78-AD; Amendment 39-13738; AD 2004-15-04]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 737-200, -200C, -300, -400, and -500 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment supersedes an existing airworthiness directive (AD), applicable to certain Boeing airplane models, that currently requires either inspections for discrepancies of the fueling float switch wiring in the center fuel tank and follow-on actions, or deactivation of the float switch. This amendment requires replacing the float switches in the center and wing fuel tanks with new, improved parts; installing a conduit liner system in the center fuel tank; and replacing conduit assemblies in the wing fuel tanks with new parts, which terminates the existing requirements. For certain airplanes, this amendment also requires replacing certain existing sections of the electrical conduit in the center fuel tank with new conduit. This amendment also adds one additional airplane model to the applicability and removes another. The actions specified by this AD are intended to prevent contamination of the fueling float switch by moisture or fuel, and chafing of the float switch wiring against the fuel tank conduit, which could present an ignition source inside the fuel tank that could cause a fire or explosion. This action is intended to address the identified unsafe condition.

DATES: Effective August 31, 2004.

The incorporation by reference of certain publications, as listed in the regulations, is approved by the Director of the Federal Register as of August 31, 2004.

The incorporation by reference of certain other publications, as listed in the regulations, was approved previously by the Director of the Federal Register as of March 18, 1999 (64 FR 10213, March 3, 1999).

ADDRESSES: The service information referenced in this AD may be obtained from Boeing Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124-2207. This information may be examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030, or go to:

http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

FOR FURTHER INFORMATION CONTACT: Sherry Vevea, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 917-6514; fax (425) 917-6590.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) by superseding AD 99-05-12, amendment 39-11060 (64 FR 10213, March 3, 1999); which is applicable to certain Boeing Model 737-100, -200, -300, -400, and -500 series airplanes; was published as a supplemental notice of proposed rulemaking (NPRM) in the Federal Register on June 11, 2003 (68 FR 34843). (A correction of AD 99-05-12 was published in the Federal Register on March 9, 1999 (64 FR 11533)). The action proposed to continue to require inspection of the fueling float switch wiring in the center fuel tank to detect discrepancies, accomplishment of corrective actions, and installation of double Teflon sleeving over the wiring of the float switch. The action also proposed to add new requirements for replacement of the float switches with new, improved float switches and installation of a conduit liner system in the center fuel tank, and replacement of the float switches and conduit assemblies with new, improved float switches and conduit assemblies in the wing fuel tanks. (The action proposed that this replacement would terminate the requirements of the existing AD.) For certain airplanes, the action also proposed to require replacement of certain sections of conduit in the center fuel tank with new conduit. The action also proposed to add one additional airplane model to the applicability and remove another.

Comments

Interested persons have been afforded an opportunity to participate in the making of this amendment. The FAA has given due consideration to the comments received.

Request To Refer to Revised Service Information

Several commenters request that we revise the supplemental NPRM to refer to the latest service information issued by the airplane manufacturer. The commenters note that the work instructions in Boeing Alert Service Bulletin 737-28A1141, Revision 1, dated December 19, 2002, have been revised to correct errors in the installation instructions.

We concur. Since the issuance of the supplemental NPRM, we have reviewed and approved Boeing Alert Service Bulletin 737-28A1141, Revision 2, dated August 21, 2003. Revision 2 of the service bulletin, among other things, modifies work instructions for installing the bonding strap to the float switch mounting bracket in the center fuel tank, modifies torque values for the B-nuts on the float switch cable conduit, and specifies that lock wire be installed on the boltheads on the front spar. Due to the nature of these changes, we have revised paragraphs (b)(1)(i)(A), (b)(1)(ii), and (h)(1) of this final rule to refer to Boeing Alert Service Bulletin 737-28A1141, Revision 2, as the appropriate source of service information for the replacement of float switches required by those paragraphs. Also, we have revised paragraph (i) of this final rule to give credit for actions accomplished before the effective date of this AD per the original issue or Revision 1 of that service bulletin, provided that the B-nuts on the float switch cable conduit are torqued to the correct values, the float switch bonding strap is installed and securely fastened to the float switch bracket or main structure, and lock wire is installed in the boltheads on the front spar, as stated in Revision 2 of the service bulletin. We find that this change does not expand the scope of the proposed AD but merely provides necessary clarification of the work instructions.

Request To Extend Compliance Time for Replacement

Three commenters request that we extend the compliance time for the proposed replacement. One commenter requests that we extend the compliance time from 2 years to 36 months due to concerns about parts availability. The commenter notes that the replacement of the fuel tank float

switch that would be required by the proposed AD is also required on Model 737-600, -700, -700C, -800, and -900 series airplanes by AD 2002-26-18, amendment 39-13006 (68 FR 481, January 6, 2003). Also, another Boeing service bulletin specifies installing the same float switches on auxiliary tanks of Boeing Model 737 series airplanes. The other commenters request that we extend the compliance time from 2 years to 4 years. One of these commenters states that this would enable operators to accomplish the replacements and installations during a scheduled heavy maintenance visit. We infer that the other commenter's request is intended to minimize the number of fuel tank entries by allowing the proposed actions to be accomplished at the same time as other ADs that require fuel tank entry.

We do not concur with the commenters' request. We have confirmed with Boeing that the necessary parts will be available for the affected airplanes within the 2-year compliance time stated in this final rule. In developing an appropriate compliance time for this final rule, we considered the manufacturer's recommendation, the degree of urgency associated with the subject unsafe condition, and the maintenance schedules of affected operators. In light of all of these factors, we find that 2 years represents an appropriate interval of time for affected airplanes to continue to operate without compromising safety. We have made no change to this final rule in this regard.

Request To Allow Repetitive Inspections in Lieu of Replacement

One commenter requests that we revise the supplemental NPRM to allow operators to perform repetitive inspections of the fueling float switches and wiring, at intervals not to exceed 30,000 flight hours, in lieu of accomplishing the replacement of the float switches and conduit assemblies with new, improved parts. The commenter explains that it has accomplished the actions currently required by AD 99-05-12 and has found no discrepancy and has installed double Teflon sleeving on the wiring for the float switch in the center fuel tank. The commenter also states that it has installed grease in the interior of the float switch electrical conduits per AD 93-17-02, amendment 39-8672 (58 FR 54945, October 25, 1993).

We do not concur with the commenter's request. The repetitive inspections only address issues with the wiring. The repetitive inspections do not correct the unsafe condition in the float switch. We can better ensure long-term continued operational safety by modifications or design changes to remove the source of the problem, rather than by repetitive inspections. Long-term inspections may not provide the degree of safety necessary for the transport airplane fleet. This, coupled with a better understanding of the human factors associated with numerous repetitive inspections, has led us to consider placing less emphasis on special procedures and more emphasis on design improvements. The proposed replacement and installation requirements are consistent with these considerations. We have made no change to this final rule in this regard.

Request To Require Installation of Transient Suppression Devices (TSDs)

Two commenters request that we require the installation of TSDs for the fuel tank float switches to limit the transfer of electrical energy and power through the float switch wires in lieu of requiring the installation of new, improved float switches and a conduit liner system or conduit assemblies. Both commenters note that a modification for installing TSDs on the float switches has been developed for use on other airplanes, including on Boeing Model 737-600, -700, -800, and -900 series airplanes. One of the commenters considers that the proposed requirements to install improved float switches and associated modifications are not consistent with the requirements of Special Federal Aviation Regulation (SFAR) No. 88, "Transport Airplane Fuel Tank System Design Review, Flammability Reduction, and Maintenance and Inspection Requirements" (66 FR 23086, May 7, 2001). The commenter notes that the new, improved float switch is powered by 28 volts direct current (DC), which exceeds the intrinsically safe level for equipment located in fuel tanks, as

defined by SFAR No. 88. The commenter states that installation of TSDs would be a more attractive solution for operators because installation of TSDs would not involve entry into and replacement of complex parts in the fuel tank.

We agree in principle with the commenters' statements that installation of TSDs on the fuel tank float switches may be an acceptable alternative to the requirement to replace the float switches with new, improved float switches and install a conduit liner system or conduit assemblies. We have previously approved installation of TSDs on the float switches on Model 737-600, -700, -700C, -800, and -900 series airplanes. However, at this time, a float switch TSD has not been approved for installation on the airplane models affected by this final rule. Should a float switch TSD for these airplanes be developed and approved in the future, operators may request approval of an alternative method of compliance (AMOC) for the requirements of this final rule, as provided by paragraph (k)(1) of this final rule.

With regard to the one commenter's concerns about potential non-compliance with SFAR No. 88, we do not agree. We note that the design standards are contained within Part 25 ("Airworthiness Standards: Transport Category Airplanes") of the Federal Aviation Regulations (14 CFR part 25), not in SFAR 88. We agree that a finding of direct compliance with the requirements of part 25 could not be made for the new, improved float switch and conduit liner or conduit assemblies because the design is not fail-safe. However, we have approved the fueling float switch, conduit liner system, and conduit assemblies having a conduit liner, as providing a level of safety equivalent to the requirements of Sections 25.901 ("Powerplant installation") and 25.981(a) and (b) ("Fuel tank ignition prevention") of the Federal Aviation Regulations (14 CFR 25.901 and 25.981), relative to the fuel tank float switch installation and maintenance instructions for the subject airplane models. We find that the new, improved design of the float switch provides an equivalent level of safety because of special compensating design features and maintenance that is required. The new, improved float switch is hermetically sealed and is more resistant than the old design to contamination by fuel or water. A new flexible ethylene tetrafluorethylene (ETFE) conduit liner installed in the float switch wiring conduit protects the wiring from chafing inside the conduit. Maintenance documents specify that this conduit liner be replaced with a new liner whenever the wiring is removed from the conduit for any reason. Also, the design of the new, improved float switch, conduit, liner, and wiring system will be listed as a Critical Design Configuration Control Limitation for the Model 737 fuel system, to ensure that operators do not modify the system without appropriate design review.

We have made no change to this final rule in this regard.

Request To Revise Cost Impact Information

One commenter states that the cost impact for replacing the float switches and installing a conduit liner or conduit assemblies is higher than stated in the supplemental NPRM. The commenter states that 87 work hours are required, and the cost of required parts is \$7,500. A second commenter also states that the estimated cost of parts is conservative and that the actual cost is higher.

We agree with the commenter's statement that the total number of work hours for accomplishing the required actions is somewhat higher than stated in the supplemental NPRM. Accordingly, we have revised the estimated work hours stated in the Cost Impact section of this final rule to 94.

We do not concur with the commenters' request to revise the estimated cost of required parts. We note that the estimated cost of required parts, between \$3,633 and \$5,061, is consistent with figures provided in the referenced service bulletin. We have made no change to this final rule in this regard.

Request To Require Similar Actions on Auxiliary Fuel Tanks

One commenter, the airplane manufacturer, requests that we revise the supplemental NPRM to refer to Boeing Alert Service Bulletin 737-28A1192, Revision 1, dated August 21, 2003. This service bulletin describes procedures for replacing the fuel tank float switch and installing a conduit liner system on Model 737 series airplanes with auxiliary fuel tanks.

We do not concur with the commenter's request. We may consider additional rulemaking to require replacing the fuel tank float switch with a new, improved float switch and installing a conduit liner system on Model 737 series airplanes with auxiliary fuel tanks. However, we have determined that it is not appropriate to add such a requirement to this AD. We have made no change to this final rule in this regard.

Request To Allow Installation of Existing Float Switch

One commenter requests that we revise the proposed AD to remove paragraph (j). The commenter notes that this paragraph prohibits the installation of the existing float switch, part number F8300-146, as of the effective date of this AD. The commenter is concerned about the need to replace an inoperative main or center tank fuel float switch on an in-service airplane that has not been modified per Boeing Alert Service Bulletin 737-28A1141.

We do not concur with the commenter's request. The new, improved float switch is more resistant to fuel and water contamination than the existing float switch. Fluid contamination in the existing float switch design could provide an electrical path between the float switch and the airplane structure, which could result in a potential ignition source in the fuel tank. Considering the criticality of the unsafe condition, we find that it would be inappropriate to allow installation of the existing float switch after the effective date of this final rule. However, in the case of a need to replace an inoperative main or center fuel tank float switch, paragraphs (c) and (d) of this final rule provide for deactivation of the float switch until the necessary replacement can be accomplished. No change to this final rule is necessary in this regard.

Request To Remove Inaccurate Statements

One commenter requests that we revise the "Actions Since Issuance of Previous Proposal" section of the supplemental NPRM to remove the statement that "the new conduit assemblies for the float switch eliminate sharp bends within the conduit. * * *" The commenter notes that this statement is not true for the affected airplane models.

We acknowledge that this statement is incorrect for the airplane models subject to this AD. This statement pertains to the new conduit assemblies that are installed in the center and wing fuel tanks on Boeing Model 737-600, -700, -700C, -800, and -900 series airplanes. However, the "Actions Since Issuance of Previous Proposal" section is not restated in this final rule, so no change is possible in this regard.

The same commenter requests that we revise the "Other Relevant Rulemaking" section of the supplemental NPRM to clarify that this AD would not require the replacement of float switch conduit assemblies in the center fuel tank.

We concur that this AD does not require replacement of all conduit assemblies in the center fuel tank. However, for airplanes subject to the inspections required by paragraph (b)(3)(ii)(A) of this final rule, this final rule does require replacement of any section of conduit where arcing or a fuel leak has occurred. Since the "Other Relevant Rulemaking" is not restated in this final rule, no change is possible in this regard.

The same commenter requests that we delete the last sentence of paragraph (b) of the supplemental NPRM, which states, "Pay particular attention to the wire bundle where it passes through the wing pylon vapor seals and under the wire bundle clamps." The commenter notes that the wing pylon vapor seal is not in the area of rework.

We concur with the commenter's request, and have deleted this sentence from paragraph (b) of this final rule.

Request To Clarify Requirement To Replace Electrical Conduit

One commenter requests that we revise the "Summary" and "Explanation of Proposed Requirements of Supplemental NPRM" sections of the supplemental NPRM to clarify what sections of the conduit in the center fuel tank need to be replaced with new conduit. Specifically, the commenter requests that we revise these sections to specify that sections of the conduit found to have damage due to arcing must be replaced.

We acknowledge the commenter's concern, but we do not agree that any change to this final rule is necessary. The summary of an AD is intended to provide only a general description of the requirements of the AD. The reference in the "Summary" section to replacing "certain existing sections of the electrical conduit" is an accurate, although general, description of the required action. Further, we acknowledge that the wording of the "Explanation of Proposed Requirements of the Supplemental NPRM" section could have been more precise as to which sections of the conduit may need to be replaced. However, this section is not restated in this final rule, so no change is possible in this regard. We find that the requirement stated in paragraph (h)(2) of the supplemental NPRM and this final rule clearly states that any section of the electrical conduit in the center fuel tank where arcing or a leak occurred must be replaced with new conduit. We have made no change to this final rule in this regard.

Explanation of Additional Changes to Final Rule

For clarification, we have revised paragraph (b)(4) of this final rule to refer specifically to Boeing Alert Service Bulletin 737-28A1132, dated December 2, 1998; Revision 1, dated January 15, 1999; or Revision 2, dated June 17, 1999; instead of to "the alert service bulletin."

Also, paragraph (e) of the supplemental NPRM states that dispatch with the float switch deactivated "is allowed until replacement float switches and wiring are available for installation or until the compliance time for the replacement required by paragraph (h) of this AD." For clarification, we have revised that paragraph to state that dispatch with the float switch deactivated "is allowed until replacement float switches and wiring are available for installation, but not later than the compliance time for the replacement required by paragraph (h) of this AD."

Also, paragraph (f) of the supplemental NPRM states that, "If the actions required by paragraph (h) of this AD are accomplished within the compliance time specified in this paragraph, operators are not required to do paragraph (b) or (c) of this AD." Our intent was that accomplishment of paragraph (h) of this final rule also entails accomplishment of paragraph (h)(2) of this final rule (as applicable). Thus, for clarification, we have revised paragraph (f) of this final rule to explicitly state that operators must accomplish the requirements of paragraph (h)(2) for the provision in paragraph (f) of this final rule to apply.

Conclusion

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule with the changes previously described. The FAA has determined that these changes will neither significantly increase the economic burden on any operator nor increase the scope of the AD.

Changes to 14 CFR Part 39/Effect on the AD

On July 10, 2002, the FAA issued a new version of 14 CFR part 39 (67 FR 47997, July 22, 2002), which governs the FAA's airworthiness directives system. The regulation now includes material that relates to altered products, special flight permits, and alternative methods of compliance

(AMOCs). Because we have now included this material in part 39, only the office authorized to approve AMOCs is identified in each individual AD. However, for clarity and consistency in this final rule, we have retained the language of the supplemental NPRM regarding that material.

Change to Labor Rate Estimate

Since the issuance of the supplemental NPRM, we have reviewed the figures we have used over the past several years to calculate AD costs to operators. To account for various inflationary costs in the airline industry, we find it necessary to increase the labor rate used in these calculations from \$60 per work hour to \$65 per work hour. The cost impact information, below, reflects this increase in the specified hourly labor rate.

Cost Impact

There are approximately 2,886 Model 737-200, -200C, -300, -400, and -500 series airplanes of the affected design in the worldwide fleet. The FAA estimates that 1,111 airplanes of U.S. registry will be affected by this AD.

The removal and inspection of the fueling float switch in the center fuel tank and installation of double Teflon sleeving, which are provided as one alternative for compliance with AD 99-05-12, takes approximately 18 work hours per airplane to accomplish, at an average labor rate of \$65 per work hour. Required parts cost approximately \$30 per airplane. Based on these figures, the cost impact of the removal and inspection of the float switch and installation of double Teflon sleeving, if accomplished, is estimated to be \$1,200 per airplane.

The deactivation of the float switch and installation of "Caution" signs that are provided as the other alternative for compliance with AD 99-05-12, takes approximately 3 work hours per airplane to accomplish, at an average labor rate of \$65 per work hour. Based on these figures, the cost impact of the deactivation and installation, if accomplished, is estimated to be \$195 per airplane.

The new replacement of float switches and installation of a conduit liner in the center fuel tank, and the replacement of float switches and conduit assemblies in the wing fuel tanks, that are required by this AD will take approximately 94 work hours per airplane to accomplish, at an average labor rate of \$65 per work hour. Required parts will cost between \$3,633 and \$5,061 per airplane. Based on these figures, the cost impact of this replacement is estimated to be between \$9,743 and \$11,171 per airplane.

The cost impact figures discussed above are based on assumptions that no operator has yet accomplished any of the requirements of this AD action, and that no operator would accomplish those actions in the future if this AD were not adopted. The cost impact figures discussed in AD rulemaking actions represent only the time necessary to perform the specific actions actually required by the AD. These figures typically do not include incidental costs, such as the time required to gain access and close up, planning time, or time necessitated by other administrative actions.

Regulatory Impact

The regulations adopted herein will not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, it is determined that this final rule does not have federalism implications under Executive Order 13132.

For the reasons discussed above, I certify that this action (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the

Regulatory Flexibility Act. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it may be obtained from the Rules Docket at the location provided under the caption ADDRESSES.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. Section 39.13 is amended by removing amendment 39-11060 (64 FR 10213, March 3, 1999), corrected at 64 FR 11533, March 9, 1999, and by adding a new airworthiness directive (AD), amendment 39-13738, to read as follows:

AIRWORTHINESS DIRECTIVE



Aircraft Certification Service
Washington, DC

U.S. Department
of Transportation
**Federal Aviation
Administration**

We post ADs on the internet at "www.faa.gov"

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

2004-15-04 Boeing: Amendment 39-13738. Docket 99-NM-78-AD. Supersedes AD 99-05-12, Amendment 39-11060.

Applicability: Model 737-200, -200C, -300, -400, and -500 series airplanes; on which the center wing tanks are activated; excluding those airplanes equipped with center wing tank volumetric top-off systems, or alternating current (AC) powered center tank float switches; certificated in any category.

Note 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (k)(1) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Required as indicated, unless accomplished previously.

To prevent contamination of the fueling float switch by moisture or fuel, and chafing of the float switch wiring against the fuel tank conduit, which could present an ignition source inside the fuel tank that could cause a fire or explosion, accomplish the following:

Requirements of AD 99-05-12

Compliance Time for Initial Action

(a) For Model 737-200, -300, -400, and -500 series airplanes having line numbers (L/N) 1 through 3108 inclusive: Prior to the accumulation of 30,000 total flight hours, or within 30 days after March 18, 1999 (the effective date of AD 99-05-12, amendment 39-11060), whichever occurs later, accomplish the requirements of paragraph (b) or (c) of this AD.

Initial Inspection: Procedures

(b) Remove the fueling float switch and wiring from the center fuel tank and perform a detailed inspection of the float switch wiring to detect discrepancies (i.e., evidence of electrical arcing, exposure of the copper conductor, presence or scent of fuel on the electrical wires, or worn insulation), in accordance with Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1132, dated December 2, 1998; Revision 1, dated January 15, 1999; or Revision 2, dated June 17, 1999. After the effective date of this AD, only Revision 2 may be used.

Note 2: For the purposes of this AD, a detailed inspection is defined as: "An intensive visual examination of a specific structural area, system, installation, or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at intensity deemed appropriate by the inspector. Inspection aids such as mirror, magnifying lenses, etc., may be used. Surface cleaning and elaborate access procedures may be required."

Initial Inspection: Follow-On Actions

(1) If no discrepancy is detected, prior to further flight, accomplish either paragraph (b)(1)(i) or (b)(1)(ii) of this AD.

(i) Measure the resistance between the wires and the float switch housing, in accordance with Boeing Alert Service Bulletin 737-28A1132, dated December 2, 1998; Revision 1, dated January 15, 1999; or Revision 2, dated June 17, 1999.

(A) If the resistance is less than 200 megohms, prior to further flight, replace the float switch and wiring with a new float switch and wiring, and install double Teflon sleeving over the wiring of the float switch, in accordance with Boeing Alert Service Bulletin 737-28A1132, dated December 2, 1998; Revision 1, dated January 15, 1999; or Revision 2, dated June 17, 1999; or replace the float switch and wiring with a new, improved float switch and wiring in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1141, Revision 2, dated August 21, 2003. After the effective date of this AD, only a new, improved float switch and wiring may be installed. If a replacement float switch and wiring are not available, prior to further flight, accomplish the requirements specified in paragraphs (c) and (d) of this AD.

(B) If the resistance is greater than or equal to 200 megohms, prior to further flight, blow dirt out of the conduit, install double Teflon sleeving over the wiring of the float switch, and reinstall the existing float switch, in accordance with Boeing Alert Service Bulletin 737-28A1132, dated December 2, 1998; Revision 1, dated January 15, 1999; or Revision 2, dated June 17, 1999.

(ii) Replace the float switch and wiring with a new float switch and wiring, and install double Teflon sleeving over the wiring of the float switch, in accordance with Boeing Alert Service Bulletin 737-28A1132, dated December 2, 1998; Revision 1, dated January 15, 1999; or Revision 2, dated June 17, 1999; or replace the float switch and wiring with a new, improved float switch and wiring in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1141, Revision 2, dated August 21, 2003. After the effective date of this AD, only a new, improved float switch and wiring may be installed. If a replacement float switch and wiring are not available, prior to further flight, accomplish the requirements specified in paragraphs (c) and (d) of this AD.

(2) If any worn insulation is detected, and if no copper conductor is exposed, and if no evidence of arcing is detected; accomplish the requirements specified in either paragraph (b)(1)(i) or (b)(1)(ii) of this AD.

(3) If any electrical arcing or exposed copper conductor is detected, prior to further flight, accomplish either paragraph (b)(3)(i) or (b)(3)(ii) of this AD.

(i) Replace any section of the electrical conduit where the arcing occurred with a new section, in accordance with Boeing Alert Service Bulletin 737-28A1132, dated December 2, 1998; Revision 1, dated January 15, 1999; or Revision 2, dated June 17, 1999; and accomplish the requirements specified in paragraph (b)(1)(ii) of this AD.

(ii) Perform a detailed inspection to detect fuel leaks of the electrical conduit, in accordance with Boeing Alert Service Bulletin 737-28A1132, dated December 2, 1998; Revision 1, dated January 15, 1999; or Revision 2, dated June 17, 1999.

(A) If no fuel leak is detected, prior to further flight, accomplish the requirements specified in paragraph (b)(1)(ii) of this AD. Repeat the inspection required by paragraph (b)(3)(ii) of this AD thereafter at intervals not to exceed 1,500 flight hours, until the replacement required by paragraph (b)(3)(ii)(B) of this AD is accomplished.

(B) If any fuel leak is detected, prior to further flight, replace, with new conduit, any section of the electrical conduit where a leak is found, in accordance with Boeing Alert Service Bulletin 737-28A1132, dated December 2, 1998; Revision 1, dated January 15, 1999; or Revision 2, dated June 17, 1999. Prior to further flight after accomplishment of the replacement, accomplish the requirements specified in paragraph (b)(1)(ii) of this AD. Accomplishment of electrical conduit replacement constitutes terminating action for the repetitive inspection requirements of paragraph (b)(3)(ii)(A) of this AD.

(4) If any presence or scent of fuel on the electrical wires is detected, prior to further flight, locate the source of the leak and replace the damaged conduit with a new conduit, in accordance with Boeing Alert Service Bulletin 737-28A1132, dated December 2, 1998; Revision 1, dated January 15, 1999; or Revision 2, dated June 17, 1999; and accomplish the requirements specified in either paragraph (b)(1)(i) or (b)(1)(ii) of this AD, unless accomplished previously in accordance with paragraph (b)(1), (b)(2), or (b)(3) of this AD.

Deactivation of Float Switch

(c) Accomplish the requirements specified in either paragraph (c)(1) or (c)(2) of this AD, in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1132, dated December 2, 1998; Revision 1, dated January 15, 1999; or Revision 2, dated June 17, 1999.

(1) Deactivate the center tank float switch (i.e., cut the two wires for the float switch at the splices on the front spar and cap and stow the four wire ends), paint a "Caution" sign that shows a conservative maximum fuel capacity for the center tank on the underside of the right-hand wing near the fueling station door, and install an INOP placard on the fueling panel.

(2) Deactivate the center tank float switch (i.e., cut, stow, and splice the two wires for the float switch at the splices on the front spar), and paint a "Caution" sign that shows a conservative maximum fuel capacity for the center tank on the underside of the right-hand wing near the fueling station door.

Deactivation of Float Switch: Additional Requirements

(d) For airplanes on which the requirements specified in paragraph (c) of this AD have been accomplished: Accomplish the requirements specified in paragraphs (d)(1), (d)(2), and (d)(3) of this AD.

(1) Operators must ensure that airplane fueling crews are properly trained in accordance with the procedures specified in Boeing Telex M-7200-98-04486, dated December 1, 1998, or procedures approved by the FAA. This one-time training must be accomplished prior to utilizing the procedures specified in paragraph (d)(3) of this AD.

(2) Prior to fueling the airplane, perform a check to verify that the fueling panel center tank quantity indicator is operative. Repeat this check thereafter prior to fueling the airplane. If the fueling panel center tank quantity indicator is not operative, prior to further flight, replace the fueling panel center tank quantity indicator with a serviceable part.

(3) One of the two manual fueling procedures for the center fuel tank must be used for each fueling occurrence, in accordance with Boeing Telex M-7200-98-04486, dated December 1, 1998, or a method approved by the FAA.

Note 3: For the purposes of this AD, the term "the FAA," is defined in paragraph (d) of this AD as "the cognizant Principal Maintenance Inspector (PMI)."

Note 4: Where there are differences between Boeing Alert Service Bulletin 737-28A1132 and this AD, the AD prevails.

Deactivation of Float Switch: Dispatch

(e) Dispatch with the center fuel tank float switch deactivated, in accordance with Boeing Alert Service Bulletin 737-28A1132, dated December 2, 1998; Revision 1, dated January 15, 1999; or Revision 2, dated June 17, 1999; is allowed until replacement float switches and wiring are available for installation, but not later than the compliance time for the replacement required by paragraph (h) of this AD. Where there are differences between the Master Minimum Equipment List (MMEL) and the AD, the AD prevails.

New Requirements of This AD

Compliance Time for Initial Action for Model 737-200C Series Airplanes

(f) For Model 737-200C series airplanes having L/Ns 1 through 3108 inclusive: Prior to the accumulation of 30,000 total flight hours, or within 30 days after the effective date of this AD, whichever occurs later, accomplish the requirements of paragraph (b) or (c) of this AD. (If the actions specified in paragraph (b) or (c) of this AD have been accomplished before the effective date of this AD, no further action is required by this paragraph.) If the actions required by paragraph (h) of this AD, including the replacement required by paragraph (h)(2) of this AD, are accomplished within the compliance time specified in this paragraph, operators are not required to do paragraph (b) or (c) of this AD.

Replacement of Conduit

(g) For airplanes having L/Ns 1 through 3108 inclusive, on which the inspection required by paragraph (b)(3)(ii) of this AD has been accomplished prior to the effective date of this AD, and on which replacement of conduit specified in paragraph (b)(3)(ii)(B) has not been accomplished: Within 1,500 flight hours or 6 months after the effective date of this AD, whichever occurs first, replace, with new conduit, any section of the electrical conduit where arcing or a leak occurred, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1132, Revision 2, dated June 17, 1999. Such replacement of the conduit constitutes terminating action for the repetitive inspection requirements of paragraph (b)(3)(ii)(A) of this AD.

Replacement of Center and Wing Tank Float Switches

(h) Within 2 years after the effective date of this AD, accomplish paragraphs (h)(1) and (h)(2) of this AD, as applicable. Except as provided by paragraph (j) of this AD, accomplishment of the actions in paragraphs (h)(1) and (h)(2) of this AD, as applicable, terminates the requirements of this AD.

(1) For all airplanes: In the center fuel tank, replace the existing float switches with new, improved float switches, and install a conduit liner system; and in the wing fuel tanks, replace the existing float switches and conduit assemblies with new, improved float switches and conduit assemblies that include a liner system inside the conduit. Do these replacements in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1141, Revision 2, dated August 21, 2003.

(2) For airplanes subject to the repetitive inspections required by paragraph (b)(3)(ii)(A) of this AD, on which the electrical conduit in the center fuel tank has not been replaced as specified in paragraph (b)(3)(ii)(B) or (g) of this AD: Prior to or concurrently with the replacement of the float switch in the center fuel tank required by paragraph (h)(1) of this AD, replace, with new conduit, any section of the center fuel tank electrical conduit where arcing or a leak occurred, in accordance with

the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1132, Revision 2, dated June 17, 1999. Such replacement constitutes terminating action for the repetitive inspection requirements of paragraph (b)(3)(ii)(A) of this AD.

Credit for Previously Accomplished Actions

(i) Replacement of float switches and conduit assemblies, and installations of conduit liner systems, as applicable, accomplished before the effective date of this AD in accordance with Boeing Alert Service Bulletin 737-28A1141, dated September 5, 2002; or Revision 1, dated December 19, 2002; are considered acceptable for compliance with the corresponding action specified in this AD, provided that the requirements of paragraphs (i)(1), (i)(2), and (i)(3) of this AD are met.

(1) The B-nuts on the float switch cable conduit must be torqued to the values specified in the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1141, Revision 2, dated August 21, 2003.

(2) The float switch bonding strap must be installed and securely fastened to the float switch bracket or main structure, as specified in the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1141, Revision 2, dated August 21, 2003.

(3) Lock wire must be installed in the boltheads on the front spar, as specified in the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1141, Revision 2, dated August 21, 2003.

Parts Installation

(j) As of the effective date of this AD, no person may install a float switch having part number F8300-146 on any airplane.

Alternative Method of Compliance

(k)(1) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Seattle ACO.

(2) Alternative methods of compliance, approved previously in accordance with AD 99-05-12, amendment 39-11060, are approved as alternative methods of compliance with the corresponding requirements of this AD.

Note 5: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Seattle ACO.

Special Flight Permits

(l) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

Incorporation by Reference

(m) Unless otherwise specified in this AD, the actions shall be done in accordance with Boeing Alert Service Bulletin 737-28A1132, dated December 2, 1998; Boeing Alert Service Bulletin 737-28A1132, Revision 1, dated January 15, 1999; Boeing Alert Service Bulletin 737-28A1132, Revision 2, dated June 17, 1999; Boeing Alert Service Bulletin 737-28A1141, Revision 2, dated August 21, 2003; and Boeing Telex M-7200-98-04486, dated December 1, 1998; as applicable.

(1) The incorporation by reference of Boeing Alert Service Bulletin 737-28A1132, Revision 2, dated June 17, 1999; and Boeing Alert Service Bulletin 737-28A1141, Revision 2, dated August 21, 2003; is approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51.

(2) The incorporation by reference of Boeing Alert Service Bulletin 737-28A1132, dated December 2, 1998; Boeing Alert Service Bulletin 737-28A1132, Revision 1, dated January 15, 1999; and Boeing Telex M-7200-98-04486, dated December 1, 1998; was approved previously by the Director of the Federal Register as of March 18, 1999 (64 FR 10213, March 3, 1999).

(3) Copies may be obtained from Boeing Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124-2207. Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

Effective Date

(n) This amendment becomes effective on August 31, 2004.

Issued in Renton, Washington, on July 1, 2004.

Kevin M. Mullin,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

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